

REMARKS

Applicant respectfully requests favorable reconsideration of this application, in view of the remarks presented. Claims 1-18 stand objected to and rejected, and are discussed below.

Objection of Claims 1 and 16

Although Claims 1 and 16 have been amended per the Examiner's objection, this is in no way an acquiescence by Applicant to the correctness and/or appropriateness of the objection, but were made to advance the prosecution of this application to allowance. Claim 4 has been canceled and new Claim 19 has been added.

Rejection of Claims 1-18

Claims 1-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dry, Burrow, and Burrow, U.S. Patent and Patent Publication Nos. 6,379,424, 2001/0022417, and 6,399,016, respectively. Applicant respectfully traverses the rejection.

Dry discloses injecting solid carbonaceous material and metalliferous feed material through juxtaposed pairs of lances. The metalliferous feed material is injected as "hot" material, i.e. at a temperature of at least 200°C. The carbonaceous material is injected as "cold" material, i.e. at a temperature less than 200°C. The hot metalliferous feed material must be conveyed through separate supply means to the carbonaceous material to avoid combustion of the carbonaceous material in the supply lines prior to injection into the vessel. Therefore, the lances in each juxtaposed pair of lances in Dry are not fed from the same supply line.

In contrast, Claim 1, recites, *inter alia*, “a main supply line and a pair of branch lines for supplying solid feed material to the lances of each pair of lances with the branch lines.” Therefore, Claim 1 recites that the pairs of lances are fed by the same supply line, which is not disclosed or suggested by Dry. Accordingly, the Examiner’s section 103 rejection of Claim 1 and Claims 2, 3 and 5-15 that depend therefrom over Dry is untenable.

Figures 1 and 2 of both Burrow references disclose lances (27) extending inwardly through side walls (14) of the vessel (11). A passage at column 4, lines 4 to 18 in U.S. Pat. No. 6,339,016 describes the location of the lances and the injection of material into the vessel via the lances. The remainder of both Burrow references are silent as to the means for supplying metalliferous material and carbonaceous material to the lances.

The key aspects of the invention recited in subject Claim 1 are:

- (i) two or more pairs of solids injection lances arranged around and extending into the vessel;
- (ii) the lances of each pair of lances being diametrically opposed each other;
- (iii) a main supply line and a pair of branch lines for supplying solid feed material to the lances of each pair of lances; and
- (iv) the branch lines for each pair of lances being substantially the same length and interconnecting the main supply line and the lances of the pair of lances.

The configuration of main and branch supply lines supplying feed materials to diametrically opposed lances enables the main and branch supply lines to be located

about the vessel to avoid interference between the various supply lines. This configuration is not disclosed or suggested in Dry or in either of the Burrow references.

Indeed, Dry and both Burrow references are entirely silent as to the configuration of supply lines for supplying metalliferous feed material and carbonaceous material to the lances.

Although Dry and both Burrow references disclose a direct smelting vessel and a direct smelting process that are functionally similar to the direct smelting vessel and direct smelting process disclosed in the subject application, neither Dry nor the Burrow references provide any suggestion or motivation for configuring main and branch supply lines as recited in Claim 1 of the subject application.

Referring also to Claim 16, Claim 16 has been amended to recite, *inter alia*, “the lance supply line for at least the one or each lance injecting metalliferous feed materials including supply lines must have an upwardly extending section, and an inwardly and downwardly extending section that ... is connected to an inlet of the lance...”.

The use of an upwardly extending section followed by an inwardly and downwardly extending section that connects to the lances is neither disclosed nor suggested by either Dry or both Burrow references. This recited arrangement is particularly important for higher density metalliferous feed material compared with carbonaceous material. The arrangement is believed to assist with re-establishing supply of raw materials to the lances after there has been an outage by helping to reduce raw material hang up and blockages in the supply line immediately upstream of the lances. Therefore, the Section 103 rejection of Claims 16, and 17-19 that

depend therefore, is also untenable. Accordingly, Applicant respectfully requests the Examiner to formally withdraw all objections and rejections of all the currently pending claims.

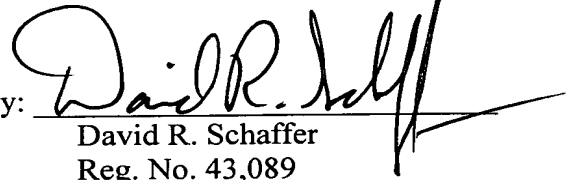
With all objections and rejections addressed, Applicant believes this application to be in condition for allowance and passage to issue is respectfully requested.

The Commissioner is hereby authorized to charge to Deposit Account No. 50-1165 (T2211-9060US01) any fees under 37 C.F.R. §§ 1.16 and 1.17 that may be required by this paper and to credit any overpayment to that Account. If any extension of time is required in connection with the filing of this paper and has not been separately requested, such extension is hereby requested.

Respectfully submitted,

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